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Treating illness distress in chronic illness: Integrating mental health approaches with illness self-management

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13 **Abstract**

14

15 Cognitive behavioural therapy (CBT) is an evidence based treatment for depression and
16 anxiety recommended for those with and without physical long-term conditions (LTCs).
17 However, the cognitive-behavioural mechanisms targeted in CBT protocols are based on
18 empirical cognitive-behavioural models of depression and anxiety. In these models,
19 emotions are conceptualised as primary mental health disorders rather than a reaction to
20 the challenges of living with a LTC commonly referred to as illness distress. This raises
21 important clinical questions with theoretical implications. These include: Is the experience
22 of illness distress conceptually distinct from primary mental health diagnoses of anxiety and
23 mood disorder? Are there unique cognitive-behavioural mechanisms related to illness self-
24 management, which should be incorporated into CBT for illness distress? How can illness
25 self-management interventions be embedded within existing CBT protocols for depression
26 and anxiety?

27 To address these questions, we distinguish between primary mental health disorders and
28 illness distress conceptually and explore the impact of this on tailored treatment planning
29 and engagement. Second, we review how health psychology theoretical models can help to
30 inform modifications of existing cognitive-behavioural treatments for anxiety and
31 depression to better support the needs of individuals experiencing illness distress. Third, we
32 provide examples of how to embed processes important for illness self-management
33 including, illness cognitions and adherence, alongside existing CBT techniques. The
34 mechanisms and intervention techniques discussed may help to inform the development of

integrated CBT treatments for illness distress for future hypothesis testing in comparative effectiveness trials.

Key words: Illness distress, depression, anxiety, common-sense model of self-regulation, stress and coping model.

Background

Common mental health disorders, including depression and anxiety, are 2-3 times more likely to occur in people with physical long-term conditions (LTCs) compared with the general population (Naylor et al., 2012). People with comorbid mental and physical health conditions have poorer health outcomes compared with either condition alone (Moussavi et al., 2007). This is associated with increased LTC health care costs by an average of 60% (up to £13 billion annually in England) (Naylor et al., 2012). In response to these findings the need to implement integrated mental and physical health care is recognised (Naylor et al., 2016). Collaborative care is a promising integrated care delivery framework recommended by UK national clinical guidelines for the management of moderate to severe depression in LTCs (National Institute for Health and Clinical Excellence, 2009).

Collaborative care is a health service delivery model originally developed to improve the management of depression by non-mental health specialists in primary care (Gunn, Diggens, Hegarty, & Blashki, 2006). It includes four core components of care delivery (Gunn et al., 2006): (i) a multi-professional approach to care, (ii) access to evidence-based treatment protocols (e.g. manualised cognitive-behavioural therapy (CBT), pharmacotherapy dosing guidelines), (iii) proactive case management, and (iv) enhanced methods of multi-disciplinary communication (e.g. shared note systems).

This coordinated approach provides clear organisational frameworks for implementing integrated care. However, the latest evidence found only modest effects of collaborative care on depression outcomes in people with LTCs compared with usual care (Panagioti, Bower, Kontopantelis, & et al., 2016). Collaborative care is a complex and multifaceted

intervention. Several factors likely moderate its effectiveness. Indeed, evidence suggests collaborative care is more effective when treatment protocols include psychological interventions compared with protocols reliant on pharmacotherapy only (Coventry et al., 2014).

Given that collaborative care is a recommended framework for implementing integrated care and preliminary findings suggest psychological interventions bolster its effectiveness, it is important to refine our understanding of the type of psychological interventions that are likely most effective for managing depression and anxiety. Current psychotherapies recommended for depression in LTCs (National Collaborating Centre for Mental Health 2010) are based on theoretical models of primary mental health disorders. They do not incorporate CBT management protocols specific to the challenges of having a LTC. Preliminary evidence collected as part of the UK Improving Access to Psychological Therapy (IAPT) initiative among people with LTCs showed significantly greater benefits across mood and quality of life outcomes for implementation sites which integrated CBT approaches with LTC self-management skills compared with sites who used standard CBT treatments for primary mental health disorders alone (de Lusigan et al., 2016). In addition, a randomised controlled trial compared tailored diabetes specific psychological therapy to a standard depression treatment for adults with diabetes and co-morbid depression (Nobis et al., 2015). It showed considerably larger effects on depression outcomes for the tailored diabetes and depression treatment arm compared with the standard depression treatment arm (Cohen's d=0.89). However, there is no agreed theoretical framework or manualised treatment protocol, which sufficiently integrates comorbid mental and LTC self-management needs.

The goals of this article are three-fold. First, the conceptual distinctions between the terms depression, anxiety, and distress are discussed. The relevance of these distinctions is highlighted by outlining how they can influence the detection and tailored treatment of negative emotions in LTCs. Second, theoretical and empirical research from the health psychology field is briefly reviewed. The aim is to highlight processes that promote successful LTC self-management for integration into CBT treatment protocols for depression and anxiety. Third, a discussion of how to embed LTC self-management skills alongside existing cognitive-behavioural intervention skills is provided.

Conceptualising depression, anxiety, and distress in the context of LTCs

The conceptualisation of depression and anxiety in LTCs has implications for its identification and management. Psychiatrically defined diagnostic criteria are commonly used (World Health Organization, 1996). This approach applies categorical thresholds to core lists of somatic (e.g. sleep, energy) and affective (e.g. low mood) symptoms to distinguish those who have a mood or anxiety disorder versus those that do not. Subcategories within the anxiety and mood disorders provide diagnoses such as panic disorder or depressive disorder (American Psychiatric Society, 2000). This pragmatic method to identification allows the allocation of limited mental health resources to those highest in clinical need (Goldberg, 2000). However, symptoms common to both depression and anxiety often co-occur yet fail to meet diagnostic criteria for either condition alone (Das-Munshi et al., 2008). Subthreshold symptoms of depression and anxiety in people with LTCs is particularly common (Geraghty et al., 2016; Katon & Roy-Byrne, 1991). To address these concerns, a Mixed Anxiety and Depressive Disorder (MADD) diagnostic category was

developed (World Health Organization, 1996). The Diagnostic and Statistical Manual of Mental Disorders also has 'Mood Disorder Due to a General Medical Condition' classified within the affective disorders (American Psychiatric Association, 2000).

However, formally diagnosing depression and anxiety in LTCs may be viewed as pathologising the experience of negative emotions which occur in response to an objectively challenging illness. Both patients and practitioners have voiced a preference to normalise the experience of distress in LTCs (Coventry et al., 2011). The terms distress, stress, or illness distress are commonly used to describe negative emotional responses to chronic illness (Esbitt, Tanenbaum, & Gonzalez, 2013; Leventhal, Halm, Horowitz, Leventhal, & Ozakinci, 2004; Steptoe & Ayers, 2004). Distress is defined as a negative emotional reaction to an adverse event/stressor (Snoek, Bremmer, & Hermanns, 2015; Steptoe & Ayers, 2004). Rather than being a single stressor having a LTC can be seen to generate a wide range of stressors. Illness stressors include either acute events (e.g. diagnosis) or chronic illness self-management challenges (e.g. treatment adherence) (Moss-Morris, 2013). Illness distress is considered multidimensional and may include: depression, anxiety, anger, guilt, and shame (Browne, Ventura, Mosely, & Speight, 2013; Kreider, 2017; Steptoe & Ayers, 2004).

Experiencing distress in response to acute challenging events is often considered adaptive (Lazarus, 1991). Negative emotions signal that there is an environmental threat that requires attention. However, defining what constitutes normal illness distress compared with a response that requires clinical intervention relies, to an extent, on clinical judgement (Lazarus, 1991). Considering the severity of illness distress, its duration, and consequential impact on function is important. However, the concept of illness distress is criticised for its lack of specificity compared with diagnostic classifications (Steptoe & Ayers, 2004). illness

specific measures of distress are emerging with psychometrically defined cut-offs to identify individuals who would benefit from clinical intervention (Ma et al., 2014; Polonsky et al., 2005; Snoek et al., 2015). In LTC contexts where illness specific measures of distress are lacking the use of composite scores of depression and anxiety with a priori defined cut-offs may offer a useful substitute (Chilcot et al., 2018; Kroenke et al., 2016).

From here on in, the term primary mental health disorder will be referred to as a condition that pre-dated the onset of a LTC or appear unrelated to the LTC (i.e. two co-occurring but not necessary interlinked illnesses) (Mc Sharry, Bishop, Moss-Morris, & Kendrick, 2013). This includes the terms primary depressive disorder and/or anxiety disorders. In contrast, the term illness distress will be used to refer to negative emotional states that are, at least in part, a clear consequence of LTC stressors. These may or may not reach diagnostic thresholds for a specific mental health disorder.

These conceptual distinctions have two important treatment implications. First, evidence is emerging to suggest that primary mental health disorders and illness distress explain unique variance in health outcomes (Barefoot & Williams, 2010; Snoek et al., 2015). These findings may indicate that the mechanisms, which trigger and sustain primary mental health disorders differ from those, which trigger and sustain illness distress. If this is the case, then illness distress likely requires modified versions of existing psychotherapies. For example, adapting CBT to integrate the symptom and self-management needs of people with LTCs. Second, the label assigned to a person's negative emotion is important for treatment engagement. Qualitative findings suggest disengagement from psychotherapy is related to health care professionals labelling negative emotions with a term that does not accurately

reflect the challenge of struggling to adjust to having a LTC (Hind et al., 2014; Knowles, Chew-Graham, Adeyemi, Coupe, & Coventry, 2015).

In the next section, theoretical models from the health psychology literature are briefly reviewed. These theories can help to inform the selection of LTC specific self-management techniques as potential candidate intervention strategies for embedding alongside existing CBT treatments to address illness distress.

Theoretical models of coping and self-management

Lazarus and Folkman's (1984) model of stress and coping suggests emotional responses to challenging events are shaped by two core processes: appraisal and coping. Appraisal occurs at two levels. Primary appraisal consists of an evaluation of the personal significance of the event. It may be appraised as having the potential for harm, loss, or challenge. Alternatively, it may be appraised as a benign occurrence. When the event is appraised as having personal significance secondary appraisal follows. During secondary appraisal coping resources for managing both the event (i.e. source of distress) and its emotional consequences are evaluated. The process of primary and secondary appraisal informs the type of coping responses implemented.

Coping consists of cognitive and behavioural strategies aimed at relieving the source of distress using problem-focussed coping whilst also managing the emotional response to the event using emotion-focussed coping. LTCs can be viewed as consisting of a series of potential stressors such as lifestyle change or adapting to disability. Appraising these illness specific events as posing a threat, harm or loss will likely lead to emotional distress unless secondary appraisals of coping efficacy and available coping resources can lessen these

negative appraisals. Greater perceived control over the event/stressor is associated with increased problem-focussed coping (e.g. problem-solving, seeking illness information). Less perceived control is associated with emotion-focussed coping (e.g. avoidance, cognitive restructuring (Folkman & Greer, 2000).

The stress and coping theoretical model helps to differentiate illness distress from primary psychopathology. It also emphasises the importance of perceptions of control and available resources for guiding the type of coping strategies implemented. However, it does not elaborate on specific illness cognitions and behaviours that are potentially important for managing illness distress. Here the common sense self-regulatory model may be more helpful (CS-SRM) (Leventhal, Phillips, & Burns, 2016). The CS-SRM is essentially a cognitive-behavioural model. Patients' illness and treatment cognitions guide their choice of illness self-management behaviours (i.e. problem-focussed behaviours). In addition, illness and treatment cognitions affect a person's emotional response to illness and consequent emotion-focussed coping strategies.

The CS-SRM suggests illness cognitions are generated by appraising illness related information according to five domains (Leventhal et al., 2016): identity – assigning an illness label to specific physical signs and symptoms (e.g. diabetes to high blood sugar), timeline – generating an understanding of illness and/or symptom duration (e.g. acute vs chronic), cause – assigning meaning to the aetiology of illness, consequences – appraising the impact of illness on current and future function, and control – evaluating the availability of personal resources and skills to manage the illness. These same five domains also generate treatment cognitions (Leventhal et al., 2016): identity – linking specific treatments (including lifestyle change) as appropriate strategies to apply when specific signs and symptoms occur, timeline

– anticipating a timescale for observing improvements in symptoms and their duration of effect, cause – interpreting treatment side effects as representing harm or evidence of efficacy/potency, consequences – experiencing real or perceived treatment side effects, and control – appraising treatment efficacy.

In line with the CS-SRM, a person's illness and treatment cognitions guide a person's choice of coping behaviours. This includes both illness self-management behaviours which overlap to some extent with the concept of problem-focussed behaviours and more emotion-focused coping to deal with emotional responses to illness (Hagger, Koch, Chatzisarantis, & Orbell, 2017). Illness self-management behaviours include sustaining treatment adherence, lifestyle change, navigating complex health systems and consultations, and implementing appropriate action plans to manage symptoms, altered function, negative emotions, or a combination of these health outcomes which change over time (Leventhal et al., 2004; Leventhal et al., 2016). Illness and treatment cognitions and self-management behaviours are continually appraised (self-regulated) for their efficacy and updated in light of new information (e.g. symptom exacerbation, consultation with medical professionals) (Leventhal et al., 2004).

Substantial empirical support exists for the relationships between illness and treatment cognitions and problem-focussed illness self-management behaviours (Hagger et al., 2017; Richardson, Schüz, Sanderson, Scott, & Schüz, 2016). When common sense cognitive representations of illness differ from the medical understanding of the condition poor illness self-management may occur (Leventhal et al., 2016). For example, individuals with asthma show lower levels of adherence to preventative steroidal inhalers when they perceive

asthma to be an acute rather than chronic condition because of its sporadic symptom presentation (Kaptein, Klok, Moss-Morris, & Brand, 2010). Even when individuals have medically accurate illness cognitions and are motivated to engage in appropriate illness self-management behaviours a lack of self-efficacy to perform a specific illness self-management task and/or concrete action plan may prevent behaviour change (Leventhal, Leventhal, & Breland, 2011). Interventions to improve illness self-management therefore focus on supporting individuals to become coherent self-managers. This involves guiding individuals to develop accurate illness and treatment cognitions and linking these cognitions to defined procedural action plans (Horowitz, Rein, & Leventhal, 2004; Leventhal et al., 2004; Petrie, Cameron, Ellis, Buick, & Weinman, 2002; Petrie, Perry, Broadbent, & Weinman, 2012). Where self-efficacy is an issue realistic grading of actions plans tailored to an individual's level of perceived competence helps build confidence in self-management (Hibbard & Gilburt, 2014).

A particular challenge to bear in mind when supporting illness self-management behaviours is the lack of immediate positive reinforcement relative to substantial behavioural efforts (Leventhal et al., 2004). For example, lifestyle changes and adherence to complex medication regimens with negative side effects may be juxtaposed with the absence of immediate reward. In operant terms, side effects may be viewed as a form of 'punishment' for engaging in the behaviour. Conversely, non-adherence/avoidance of treatment acts as a negative reinforcer by removing aversive side effects. This strengthens the unhelpful non-adherent behaviour. Thus sustaining engagement in illness self-management tasks may require an individual to have a coherent understanding that successful illness self-management may not always lead to immediate and/or observable gains in health

outcomes or a return to the "normal" self (Leventhal et al., 2004; Leventhal et al., 2016). To support this process alternative criteria for evaluating successful and meaningful adherence are needed. SMART goal setting may be a useful intervention technique to apply (Doran, 1981). Indeed, goal setting is recommended by UK clinical guidelines to support behavioural change (National Institute for Health and Care Excellence, 2014). SMART goal setting provides a formal structure to allow the generation of illness self-management goals. For example, goals are concretely defined using the SMART acronym (Specific, Measurable, Achievable, Relevant and Timely). Explicitly defining illness self-management goals using objective and measurable criteria whilst setting a realistic and achievable timeframe for their implementation allows a more objective assessment of illness self-management as opposed to relying on subjective and non-specific symptom cues.

Further support for sustaining behavioural change may be achieved by providing opportunities to generate habitual illness self-management routines (Leventhal et al., 2011; Phillips, Leventhal, & Leventhal, 2013). Self-management habits are formed by generating cues (triggers) for adaptive illness self-management tasks (e.g. placing medication next to tooth brush) (Leventhal et al., 2011). This promotes a switch from conscious deliberative illness self-management behaviours to automatic actions, thus freeing cognitive resources for other tasks.

Evidence is emerging to suggest pessimistic illness and treatment cognitions and low levels of treatment adherence are associated with elevated symptoms of depression and anxiety (Hudson, Bundy, Coventry, & Dickens, 2014; Katon, 2011; Richardson et al., 2016). When illness distress is present implementing treatment interventions which target the processes

outlined in the stress and coping model and CS-SRM would likely be beneficial. This would include: identifying illness stressors, exploring a person's illness and treatment cognitions to identify inaccurate appraisals for targeting, establishing what components of the stressors are controllable and thus require procedural support to implement behaviour change. However, problem-focussed coping directed towards managing the external illness stressors is likely a necessary but not sufficient intervention to address illness distress. Indeed, interventions which have provided intensive self-management support have typically failed to demonstrate synergistic improvements in mental health outcomes (Detweiler-Bedell, Friedman, Leventhal, Miller, & Leventhal, 2008). A person's resources may be deployed towards problem-focussed illness self-management thus limiting resource for emotion-regulation (Detweiler-Bedell et al., 2008). It may be that a person initially experiences illness distress but then goes on to develop a primary mental health disorder which requires a more explicit emotion-focused intervention (Moorey & Greer, 2012). Indeed, this situation may arise when the degree of control over the illness-related stressors is limited. In the final section, the potential for integrating the problem-focussed illness self-management processes reviewed above alongside the processes amenable to emotion-focussed coping using existing CBT techniques (Beck, 1976) are discussed.

Integrating LTC self-management processes alongside CBT models of depression and anxiety

In primary mental health disorders the selection and sequencing of CBT techniques is informed by evidence-based knowledge of the perpetuating/maintaining processes that are present across (e.g. transdiagnostic processes) and within (e.g. disorder-specific processes) disorders (Tarrier & Johnson, 2007). Knowledge of transdiagnostic processes is advantageous when robust evidence to support the use of a particular CBT treatment

protocol is lacking or when individuals present with comorbid depression and anxiety (Dudley, Kuyken, & Padesky, 2011). Having an awareness of these core maintaining processes is salient in the illness distress context because of its hypothesised multidimensional nature. As such, this generic transdiagnostic framework can be used to select CBT techniques known to effectively target transdiagnostic processes. However, this needs to occur alongside illness specific self-management intervention techniques. Indeed, this may improve the acceptability and efficiency of treatment delivery and bolster health outcomes.

Table I provides diabetes and COPD specific examples of integrating unhelpful illness responses to stressors alongside the key transdiagnostic processes common across primary mental health disorders (Dudley et al., 2011). The transdiagnostic factors include: behavioural avoidance, experiential avoidance, heightened attention, and repetitive negative thinking (rumination and/or worry). The remainder of this article focusses on how each of these transdiagnostic processes can be addressed to reduce illness-related distress. The aim is to demonstrate how illness self-management techniques may be integrated alongside evidence-based CBT techniques which map to and effectively target the transdiagnostic processes listed. It is important to highlight that the CBT techniques discussed draw on key summary texts and competency frameworks (Clark & Beck, 2011; McCracken, 2011; Roth & Pilling, 2007). Providing an extensive summary of their application and comparative effectiveness is beyond the scope of this article.

Behavioural avoidance

Patterns of behavioural withdrawal are observed in depression decreasing opportunities for pleasurable experiences and positive reinforcement (Jacobson, Martell, & Dimidjian, 2001).

Withdrawal is hypothesised to occur because a person experiences aversive and punishing environmental events (Jacobson et al., 2001). This is likely occurring in the diabetes case example (Table I). The person has withdrawn from his/her aversive insulin treatment and is no longer adhering to lifestyle changes. Consequently, this decreases opportunities for gaining diabetes mastery and its associated positive reinforcement. Validated self-report measures of treatment adherence are available to identify and explore the nature and extent of a person's medication non-adherence (Horne, Hankins, & Jenkins, 2001).

Behavioural activation is an evidence based CBT technique which targets withdrawal by encouraging individuals to gradually re-engage with necessary routines and schedule opportunities for positive reinforcement (Jacobson et al., 2001). The application of these techniques in the illness distress context may benefit from drawing on problem-focussed illness self-management processes to ensure the scheduling of tasks are congruent with LTC needs. In the diabetes example, scheduling routine tasks could include diabetes self-management tasks. Thus, the initial goal may be first to schedule a necessary yet achievable baseline diabetes related behaviour. SMART goal setting may be used (e.g. introducing a short 10-minute walk twice a day to reduce weight). This will allow a degree of illness mastery to be regained whilst also providing clear criteria to monitor the attainment of illness self-management goals. To establish this first baseline goal, it may be helpful to explore a person's common-sense treatment cognitions. For example, their perceived benefits and barriers of engaging in walking, their treatment/lifestyle outcome expectations and how they are defining this, and any treatment concerns. Once basic behavioural goals are met the next step is to collaboratively generate revised and suitably tailored SMART goals. If a treatment goal is to work towards integrating insulin treatments into routine behaviours, then problem-solving (D'Zurilla & Goldfried, 1971) may applied. During this

process gaps in declarative knowledge (e.g. illness and treatment cognitions) or procedural skills (e.g. administering insulin injections) can be identified (Leventhal et al., 2011) and graded action plans implemented. An assessment of a person's illness and treatment cognitions may facilitated/guided by self-report questionnaires. A commonly used questionnaire used to explore illness cognitions is the Illness Perceptions Questionnaire revised (Moss-Morris et al., 2002). Likewise an assessment of person's treatment cognitions may be guided by the constructs/dimensions of the Beliefs about Medicines Questionnaire (Horne & Weinman, 1999)

Exploring treatment outcome expectancies when commencing a new treatment/self-management routine such as extensive lifestyle change will allow appropriate reward contingencies to be developed (National Institute for Health and Care Excellence, 2014). For example, a person expecting to observe a dramatic weight loss within one week of lifestyle change may need guidance to develop a more realistic timeframe for experiencing reward. Agreeing alternative sources of positive reinforcement for engaging in lifestyle behaviours may help reduce distress during this challenging period of habitual change. Involving social support networks for additional support may also be beneficial (National Institute for Health and Care Excellence, 2014).

Escape/avoidance behaviours commonly occur when a person interprets external environmental stimuli or internal bodily cues (e.g. symptoms) as a threat to survival (Wells, 1997). Because a person repeatedly escapes/avoids their feared situation they fail to be provided with opportunities to learn the feared event does not occur (i.e. habituate to the feared environmental stimuli). In the COPD case example (Table I), avoidance of exercise is

likely occurring because of a fear of exacerbating breathlessness symptoms and the perceived life threatening consequences of this (Livermore, Sharpe, & McKenzie, 2010).

Graded exposure targets avoidance mechanisms by gradually exposing individuals to their feared situation (Wells, 1997). Graded exposure may usefully be applied in the illness distress context. However, some adaptations may be needed to ensure symptoms common to illness distress, in this case breathlessness, are simultaneously managed from a problem-focussed illness self-management perspective. Indeed, if breathlessness symptoms are not self-managed the outcome may be fatal (Livermore et al., 2010).

It therefore may be useful to first explore a patient's illness and treatment cognitions to identify what is motivating their avoidance behaviours and provide a treatment rationale for graded exposure. This may involve explaining the long-term benefits of exercise for COPD (e.g. strengthens muscles, improves breathlessness, sustained independence) and the short-term effects of avoidance (e.g. temporary relief from feared situation) using psychoeducation (Bolton et al., 2013). Once the rationale for treatment is established a therapist can work collaboratively with the physical health care team. In the COPD context, this may include pulmonary rehabilitation (Livermore et al., 2010). Prior to engaging with graded exposure therapy a person's symptom to illness label attribution (from the identity domain of the CS-SRM) may need exploring. A person may be erroneously attributing symptoms of breathlessness to a critical and life-threatening exacerbation in their health status as opposed to a normal response to exertion. Incorporating objective markers of symptoms where possible may help to develop accurate identity illness cognition domains (McAndrew et al., 2008). Re-engaging in feared behaviours may also be facilitated by providing action plans/coping procedures to assist with symptom experience (Moorey &

Greer, 2012). For example, in the case of COPD and breathlessness on exertion this may involve applying the pursed lip breathing technique (Roberts, Stern, Schreuder, & Watson, 2009). Once symptom management action plans are established, graded exposure to the feared event (e.g. exercise) can occur. Thus, engagement with this intervention technique may be considerably longer in the illness distress context.

Experiential avoidance

Experiential avoidance can be defined as a process whereby a person takes active steps to prevent themselves from remaining in contact with unpleasant thoughts, feelings or physical sensations (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). A person may implement cognitive avoidance strategies whereby they deny the objective and threatening long-term consequences of illness and/or implement distraction techniques. Alternatively a person may attempt to suppress their outward expression of emotions to others (Peters, Overall, & Jamieson, 2014). Denial and distraction are demonstrated in the diabetes example (Table I). An erroneous reframing of the possible negative consequences of diabetes and the need for insulin (treatment control cognition) is used to lessen feelings of threat. When confronted with information or images that threaten his/her erroneous beliefs attention is allocated elsewhere. A person using denial and/or distraction may not necessarily present with symptoms of illness distress as their coping strategies precariously sustain mood in the face of threatening illness related information. Indeed, experiential avoidance may be a useful strategy to apply short-term to allow the mobilisation of coping resources. In these instances, it may be useful to explore a person's illness and treatment cognitions using self-report measures such as the Illness Perception Questionnaire-revised (Moss-Morris et al., 2002). In contrast, emotional suppression is illustrated in the COPD example. The example is internally experiencing negative emotions but not expressing these

to others. The use of the this strategy may be particularly challenging to identify but the Beliefs about Emotions Scale (Rimes & Chalder, 2010) may help a therapist to gain a better understanding of a person's coping techniques.

Written emotional expression may be a useful intervention technique for experiential avoidance (Pennebaker, 1997). Emotional expression provides a person with the opportunity to process emotional needs and can better inform therapeutic targets for action moving forward (Moorey & Greer, 2012). For example, it may enable the identification of erroneous illness and treatment cognitions and unhelpful problem-focused coping behaviours in response to these techniques. These can be addressed using cognitive reappraisal techniques (Beck, 1976) alongside providing behavioural support for illness self-management which may also provide a behavioural experiment to challenge beliefs. However, a person may well hold objectively valid beliefs and emotional responses. Third wave CBT techniques including mindfulness and acceptance may be beneficial in these contexts (McCracken, 2011). It may be challenging to engage a person using experiential avoidance as a coping strategy. Remaining contextually focussed on their illness whilst encouraging individuals to reflect on the costs and benefits of their current coping approaches may prove beneficial (Moorey & Greer, 2012).

Self-focussed attention

Attention towards the self commonly occurs in depression. Typically the focus remains on the inconsistency between the current and desired self (Pyszczynski, Hamilton, Herring, & Greenberg, 1989). In the context of chronic illness, as the diabetes example illustrates selective abstraction may occur (Beck, 1976) whereby a person focuses on the negative impact of illness and discounts positive events.

The process of self-focussed attention may be targeted using cognitive-reappraisal techniques (Beck, 1976). In the diabetes example, a person would be encouraged to generate a more balanced view of their diabetes by acknowledging the aspects of life diabetes does affect (e.g. diet and lifestyle) whilst counterbalancing this with aspects of life it does not impinge on (e.g. time with Grandchildren after school). A purely behavioural approach to targeting self-focussed attention is to monitor the contexts in which it occurs and then generate an instrumental action plan for use in these contexts (Jacobson et al., 2001). This may include using mindfulness based approaches (McCracken, 2011) or scheduling positive events with opportunities for mastery.

Hypervigilance towards environmental threats occurs in anxiety (Wells, 1997). As the COPD example illustrates, this may involve self-monitoring of internal bodily symptoms (e.g. breathlessness) to detect symptoms which pose a threat to health. Anxiety CBT protocols target hypervigilance through the generation of behavioural experiments (Wells, 1997). An individual is encouraged to become self-focussed during sessions with a therapist. This attentional control task guides the individual to discover the impact of self-focused attention on symptom detection and intensification. However, in the context of chronic illness a degree of self-monitoring is needed to regulate physical health. An acceptable baseline for self-monitoring symptoms should be established in collaboration with the physical health team. Likewise, procedural action plans should be generated to allow a person to become skilled in managing symptoms when detected, which will likely enhance their sense of illness mastery and ultimately decrease anxiety.

Rumination and worry

Perseverative patterns of negative thinking occur commonly in primary mental health disorders and may include content focussed on loss and/or worry about uncertainty (Dudley et al., 2011; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Engaging in rumination and worry is motivated by a wish to problem-solve; however, paradoxically it thwarts problem-solving abilities (Nolen-Hoeksema et al., 2008). In the diabetes example, the person is focussed on the perceived injustice of their diabetes and is intent on finding a medical cure. Signs of "all or nothing" thinking are present in the diabetes case example (Beck, 1976). The COPD example, is showing catastrophic thinking patterns about the consequences of exercising (e.g. death) and is applying behavioural managements strategies to gain greater control and certainty over their future health (e.g. rest and symptom monitoring).

CBT intervention techniques target rumination and worry by scheduling positive and reinforcing events to block repetitive thinking cycles. These draw on mindfulness based principles to then subsequently work towards supporting effective problem-solving skills, instrumental behaviours, and reappraisal of unhelpful cognitions (Nolen-Hoeksema et al., 2008). In the diabetes example, once behavioural strategies have been employed to thwart engagement in rumination, examining the benefits of remaining focussed on the injustice of diabetes relative to achieving long-term goals may be explored in an empathic and supportive manner (Moorey & Greer, 2012). The person may be supported in shifting his/her focus from factors outside of his/her control to factors within his/her control, which provide opportunities for pleasure and mastery. In the COPD example, catastrophic patterns of thinking are present (e.g. death from exacerbation of breathlessness). The objectivity of these thoughts may be explored using graded exposure techniques discussed above (Wells, 1997). Alternatively, if the worrisome thoughts are objectively truthful, then emotion-

focussed coping strategies for managing the threat of uncertainty may be implemented by drawing on mindful and acceptance approaches (McCracken, 2011).

Conclusion

The delivery of integrated mental and physical health care is a priority on international policy agendas. However, robust manualised CBT treatments capable of synergistically targeting mental and physical health needs are lacking. This paper has outlined factors to consider when developing and implementing integrated CBT. First, it may be useful to conceptually distinguish between primary mental health disorders and illness distress. The potential need for these distinctions was discussed in relation to its impact on the detection and tailored management of negative emotions in LTC contexts. For individuals experiencing illness distress, a CBT manual which remains contextually anchored to their experience of living with a LTC may ultimately promote engagement with care and improve health outcomes. To inform the content of an integrated CBT manual, the health psychology literature was briefly reviewed. This literature highlighted the importance of accurate illness and treatment appraisals and behavioural management strategies for sustaining effective problem-focussed coping in response to illness stressors. How to embed these processes alongside existing evidence based CBT intervention techniques was explored. Transdiagnostic processes associated with symptoms of depression and anxiety were identified. How these processes may present in the context of illness distress was explored followed by a discussion of how CBT intervention techniques which map to and effectively target these transdiagnostic processes could be adapted to incorporate LTC specific knowledge and problem-focussed self-management strategies. The suggestions in this

review now require further hypothesis testing in robust clinical trials with embedded mechanism and efficacy evaluations.

505 Table I: Transdiagnostic mechanisms common across primary mental health disorders and examples of how these may present in the context of illness
506 distress

Transdiagnostic mechanisms	**Illness Specific Case Example: Type 2 Diabetes** **Stressor: Progression onto insulin treatment**	**Illness Specific Case Example: COPD** **Stressor: Exacerbation in breathlessness upon exertion**
Behavioural Avoidance	-Diabetes specific behavioural avoidance/withdrawal in response to progression onto insulin. -Insulin may be operantly defined as a punisher. Thus a person may choose to avoid this punishing treatment regimen and not commence their insulin treatment schedule. -Opportunities to achieve illness mastery are diminished which impairs motivation and adherence to other illness self-management and/or pleasurable tasks are reduced (e.g. lifestyle change, seeing friends).	-COPD specific behavioural avoidance in response to symptoms of breathlessness. -Exercise is avoided because of fear of symptom exacerbation. -A person's sedentary lifestyle results in physical deconditioning and breathlessness symptoms worsening on exertion.
Experiential avoidance -Denial -Distraction -Suppression	-Denying the negative consequences of insulin non-adherence. Thus, a person has an inaccurate illness representation – specifically the consequences domain from CS-SRM.	-Not wanting to discuss COPD and consequently a person experiences increased somatic symptoms (suppression).

	Example cognition: *"Kidney failure won't happen to me, I only have Type 2 diabetes and not the serious kind of diabetes."* -Justifying non-adherence to a low perceived treatment efficacy of insulin. Thus, a person has an inaccurate treatment representation – specifically the treatment control domain from the CS-SRM. Example cognition: *"All the other treatments for diabetes haven't worked so why should insulin? I give up."* -Distraction from thoughts about the consequences of non-adherence. Thus, a person likely has low perceptions of control. Example cognition: *"I'm not going to read any information the Doctor provides – it's just scare mongering and there's nothing I can do. I've tried."*	
Self-focussed attention	-Focus on negative effects of diabetes. Thus, patient has an exaggerated illness representation, specifically in the consequences domain of the CS-SRM. Example cognition: *"Diabetes means always leading a life I do not enjoy."*	-Focus on symptoms associated with COPD exacerbation (e.g. breathlessness, tightness in chest). Thus, a person may have an inaccurate symptom representation (identity domain of the CS-SRM) through the misattribution of symptoms of anxiety to COPD.
Rumination/Worry	-Focus on perceived injustice of illness and intent on curative model of illness.	-Focus on worst case scenario (e.g. death from symptom exacerbation) and using an inappropriate coping procedure in response to thought.

	Thus, the person has a preoccupation on the cause, consequence and treatment control of diabetes from CS-SRM. Example cognitions: *"Why do I have diabetes and not my siblings? I need to find a cure, without this I cannot move on with my life. Diabetes affects everything".*	Thus, the person has a catastrophic illness representation specifically in the identity, consequences and treatment control domains from CS-SRM. Example cognitions: *"Exercise leads to death. I will rest to protect myself".*

507

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Barefoot, J. C., & Williams, R. B. (2010). Hostility and Health *Handbook of Behavioral Medicine* (pp. 169-183): Springer.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: Penguin Group.

Bolton, C. E., Bevan-Smith, E. F., Blakey, J. D., Crowe, P., Elkin, S. L., Garrod, R., . . . Walmsley, S. (2013). British Thoracic Society guideline on pulmonary rehabilitation in adults: accredited by NICE. *Thorax, 68*(Suppl 2), ii1-ii30. doi:10.1136/thoraxjnl-2013-203808

Browne, J. L., Ventura, A., Mosely, K., & Speight, J. (2013). 'I call it the blame and shame disease': a qualitative study about perceptions of social stigma surrounding type 2 diabetes. *BMJ open, 3*(11). doi:10.1136/bmjopen-2013-003384

Chilcot, J., Hudson, J. L., Moss-Morris, R., Carroll, A., Game, D., Simpson, A., & Hotopf, M. (2018). Screening for psychological distress using the Patient Health Questionnaire Anxiety and Depression Scale (PHQ-ADS): Initial validation of structural validity in dialysis patients. *General hospital psychiatry, 50*(Supplement C), 15-19. doi:https://doi.org/10.1016/j.genhosppsych.2017.09.007

Clark, D. A., & Beck, A. T. (2011). *Cognitive therapy of anxiety disorders: Science and practice*: Guilford Press.

Coventry, P. A., Hays, R., Dickens, C., Bundy, C., Garrett, C., Cherrington, A., & Chew-Graham, C. (2011). Talking about depression: a qualitative study of barriers to managing depression in people with long term conditions in primary care. *BMC Family Practice, 12*(1), 1.

Coventry, P. A., Hudson, J. L., Kontopantelis, E., Archer, J., Richards, D. A., Gilbody, S., . . . Waheed, W. (2014). Characteristics of Effective Collaborative Care for Treatment of Depression: A Systematic Review and Meta-Regression of 74 Randomised Controlled Trials. *PloS one, 9*(9), e108114.

D'Zurilla, T. J., & Goldfried, M. R. (1971). Problem solving and behavior modification. *Journal of abnormal Psychology, 78*(1), 107.

Das-Munshi, J., Goldberg, D., Bebbington, P. E., Bhugra, D. K., Brugha, T. S., Dewey, M. E., . . . Prince, M. (2008). Public health significance of mixed anxiety and depression: beyond current classification. *The British Journal of Psychiatry, 192*(3), 171-177.

de Lusigan et al. (2016). *IAPT LTC/MUS Pathfinder Evaluation Project.* Surrey: University of Surrey.

Detweiler-Bedell, J. B., Friedman, M. A., Leventhal, H., Miller, I. W., & Leventhal, E. A. (2008). Integrating co-morbid depression and chronic physical disease management: Identifying and resolving failures in self-regulation. *Clinical psychology review, 28*(8), 1426-1446. doi:10.1016/j.cpr.2008.09.002

Doran, G. T. (1981). There's a SMART way to write management's goals and objectives. In A. F. Miller & J. A. Cunningham (Eds.), *" How to avoid costly job mismatches"* (Vol. 70 (11)): Management Review.

Dudley, R., Kuyken, W., & Padesky, C. A. (2011). Disorder specific and trans-diagnostic case conceptualisation. *Clinical psychology review, 31*(2), 213-224.

Esbitt, S. A., Tanenbaum, M. L., & Gonzalez, J. S. (2013). Disentangling Clinical Depression from Diabetes-Specific Distress: Making Sense of the Mess We've Made. In C. E. LLoyd, F. Pouwer, & N. Hermanns (Eds.), *Screening for Depression and Other Psychological Problems in Diabetes* (pp. 27-46). London: Springer.

Folkman, S., & Greer, S. (2000). Promoting psychological well-being in the face of serious illness: when theory, research and practice inform each other. *Psycho-oncology, 9*(1), 11.

Geraghty, A. W. A., Santer, M., Williams, S., Mc Sharry, J., Little, P., Muñoz, R. F., . . . Moore, M. (2016). 'You feel like your whole world is caving in': A qualitative study of primary care

patients' conceptualisations of emotional distress. *Health:An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 1363459316674786. doi:10.1177/1363459316674786

Goldberg, D. (2000). Plato versus Aristotle: categorical and dimensional models for common mental disorders. *Comprehensive psychiatry, 41*(2), 8-13.

Gunn, J., Diggens, J., Hegarty, K., & Blashki, G. (2006). A systematic review of complex system interventions designed to increase recovery from depression in primary care. *BMC Health Services Research, 6*(1), 88.

Hagger, M. S., Koch, S., Chatzisarantis, N. L. D., & Orbell, S. (2017). The common sense model of self-regulation: Meta-analysis and test of a process model. *Psychological bulletin, 143*(11), 1117-1154. doi:10.1037/bul0000118

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of consulting and clinical psychology, 64*(6), 1152.

Hibbard, J., & Gilburt, H. (2014). Supporting people to manage their health. *An introduction to patient activation. London: The King's Fund*.

Hind, D., Cotter, J., Thake, A., Bradburn, M., Cooper, C., Isaac, C., & House, A. (2014). Cognitive behavioural therapy for the treatment of depression in people with multiple sclerosis: a systematic review and meta-analysis. *BMC psychiatry, 14*(1), 1.

Horne, R., Hankins, M., & Jenkins, R. (2001). The Satisfaction with Information about Medicines Scale (SIMS): a new measurement tool for audit and research. *Quality and Safety in Health Care, 10*(3), 135-140.

Horne, R., & Weinman, J. (1999). Patients' beliefs about prescribed medicines and their role in adherence to treatment in chronic physical illness. *J Psychosom Res, 47*.

Horowitz, C. R., Rein, S. B., & Leventhal, H. (2004). A story of maladies, misconceptions and mishaps: effective management of heart failure. *Social science & medicine, 58*(3), 631-643.

Hudson, J., L, Bundy, C., Coventry, P., A, & Dickens, C. (2014). Exploring the relationship between cognitive illness representations and poor emotional health and their combined association with diabetes self-care. A systematic review with meta-analysis. *Journal of Psychosomatic Research, 76*(4), 265-274.

Jacobson, N. S., Martell, C. R., & Dimidjian, S. (2001). Behavioral activation treatment for depression: returning to contextual roots. *Clin Psychol Sci Pract, 8*. doi:10.1093/clipsy.8.3.255

Kaptein, A. A., Klok, T., Moss-Morris, R., & Brand, P. L. (2010). Illness perceptions: impact on self-management and control in asthma. *Current opinion in allergy and clinical immunology, 10*(3), 194-199.

Katon, W., & Roy-Byrne, P. P. (1991). Mixed anxiety and depression. *Journal of abnormal Psychology, 100*(3), 337.

Katon, W. J. (2011). Epidemiology and treatment of depression in patients with chronic medical illness. *Dialogues Clin Neurosci, 13*(1), 7-23.

Knowles, S. E., Chew-Graham, C., Adeyemi, I., Coupe, N., & Coventry, P. A. (2015). Managing depression in people with multimorbidity: a qualitative evaluation of an integrated collaborative care model. *BMC Family Practice, 16*(1), 32. doi:10.1186/s12875-015-0246-5

Kreider, K. E. (2017). Diabetes Distress or Major Depressive Disorder? A Practical Approach to Diagnosing and Treating Psychological Comorbidities of Diabetes. *Diabetes Therapy, 8*(1), 1-7. doi:10.1007/s13300-017-0231-1

Kroenke, K., Wu, J., Yu, Z., Bair, M. J., Kean, J., Stump, T., & Monahan, P. O. (2016). Patient Health Questionnaire Anxiety and Depression Scale: Initial Validation in Three Clinical Trials. *Psychosomatic medicine, 78*(6), 716-727.

Lazarus, R. S. (1991). *Emotion and adaptation*: Oxford University Press on Demand.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Publishing Company.

Leventhal, H., Halm, E., Horowitz, C., Leventhal, E. A., & Ozakinci, G. (2004). Living with chronic illness: A contextualized, self-regulation approach. *The Sage handbook of health psychology*, 197-240.

Leventhal, H., Leventhal, E. A., & Breland, J. Y. (2011). Cognitive science speaks to the "common-sense" of chronic illness management. *Annals of Behavioral Medicine, 41*(2), 152-163.

Leventhal, H., Phillips, L. A., & Burns, E. (2016). The Common-Sense Model of Self-Regulation (CSM): A dynamic framework for understanding illness self-management. *Journal of behavioral medicine, 39*(6), 935-946.

Livermore, N., Sharpe, L., & McKenzie, D. (2010). Prevention of panic attacks and panic disorder in COPD. *European Respiratory Journal, 35*(3), 557-563.

Ma, X., Zhang, J., Zhong, W., Shu, C., Wang, F., Wen, J., . . . Liu, L. (2014). The diagnostic role of a short screening tool—the distress thermometer: a meta-analysis. *Supportive Care in Cancer, 22*(7), 1741-1755.

Mc Sharry, J., Bishop, F. L., Moss-Morris, R., & Kendrick, T. (2013). 'The chicken and egg thing': Cognitive representations and self-management of multimorbidity in people with diabetes and depression. *Psychology & Health, 28*(1), 103-119.

McAndrew, L. M., Musumeci-Szabó, T. J., Mora, P. A., Vileikyte, L., Burns, E., Halm, E. A., . . . Leventhal, H. (2008). Using the common sense model to design interventions for the prevention and management of chronic illness threats: from description to process. *British Journal of Health Psychology, 13*(2), 195-204.

McCracken, L. (2011). *Mindfulness and acceptance in behavioral medicine: Current theory and practice*: New Harbinger Publications.

Moorey, S., & Greer, S. (2012). *Oxford guide to CBT for people with cancer* (2nd ed.). Oxford: Oxford University Press.

Moss-Morris, R., Weinman, J., Petrie, K. J., Horne, R., Cameron, L. D., & Buick, D. (2002). The revised Illness Perception Questionnaire (IPQ-R). *Psychology & Health, 17*(1), 1-16.

Moss-Morris, R. (2013). Adjusting to chronic illness: Time for a unified theory. *British journal of health psychology, 18*(4), 681-686.

Moussavi, S., Chatterji, S., Verdes, E., Tandon, A., Patel, V., & Ustun, B. (2007). Depression, chronic diseases, and decrements in health: results from the World Health Surveys. *The Lancet, 370*(9590), 851-858. doi:https://doi.org/10.1016/S0140-6736(07)61415-9

National Collaborating Centre for Mental Health (2010). *Depression in adults with a chronic physical health problem: Treatment and Mangaement* London: The British Psychological Society and The Royal College of Psychiatrists.

National Institute for Health and Care Excellence. (2014). *Behaviour change: individual approaches (PH49).* London: National Clinical Guideline Centre.

National Institute for Health and Clinical Excellence. (2009). Depression in adults with a chronic physical health problem: full guideline. Retrieved from http://www.nice.org.uk/guidance/cg91/evidence/cg91-depression-with-a-chronic-physical-health-problem-full-guideline2

Naylor, C., Das, P., Ross, S., Honeyman, M., Thompson, J., & Gilburt, H. (2016). Bringing together physical and mental health. Retrieved from http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/Bringing-together-Kings-Fund-March-2016_1.pdf

Naylor, C., Parsonage, M., McDaid, D., Knapp, M., Fossey, M., & Galea, A. (2012). *Long-term conditions and mental health: the cost of co-morbidities*: The King's Fund.

Nobis, S., Lehr, D., Ebert, D. D., Baumeister, H., Snoek, F., Riper, H., & Berking, M. (2015). Efficacy of a Web-Based Intervention With Mobile Phone Support in Treating Depressive Symptoms in Adults With Type 1 and Type 2 Diabetes: A Randomized Controlled Trial. *Diabetes Care, 38*(5), 776-783.

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on psychological science, 3*(5), 400-424.

Panagioti, M., Bower, P., Kontopantelis, E., & et al. (2016). Association between chronic physical conditions and the effectiveness of collaborative care for depression: An individual participant data meta-analysis. *JAMA psychiatry, 73*(9), 978-989. doi:10.1001/jamapsychiatry.2016.1794

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological science, 8*(3), 162-166.

Peters, B. J., Overall, N. C., & Jamieson, J. P. (2014). Physiological and cognitive consequences of suppressing and expressing emotion in dyadic interactions. *International Journal of Psychophysiology, 94*(1), 100-107.

Petrie, K. J., Cameron, L. D., Ellis, C. J., Buick, D., & Weinman, J. (2002). Changing illness perceptions after myocardial infarction: an early intervention randomized controlled trial. *Psychosomatic medicine, 64*(4), 580-586.

Petrie, K. J., Perry, K., Broadbent, E., & Weinman, J. (2012). A text message programme designed to modify patients' illness and treatment beliefs improves self-reported adherence to asthma preventer medication. *British Journal of Health Psychology, 17*(1), 74-84.

Phillips, L. A., Leventhal, H., & Leventhal, E. A. (2013). Assessing Theoretical Predictors of Long-Term Medication Adherence: Patients' Treatment-Related Beliefs, Experiential Feedback, and Habit Development. *Psychology & Health, In press*.

Polonsky, W. H., Fisher, L., Earles, J., Dudl, R. J., Lees, J., Mullan, J., & Jackson, R. A. (2005). Assessing psychosocial distress in diabetes development of the diabetes distress scale. *Diabetes Care, 28*(3), 626-631.

Pyszczynski, T., Hamilton, J. C., Herring, F. H., & Greenberg, J. (1989). Depression, Self-Focused Attention, and the Negative Memory Bias. *Journal of personality and social psychology, 57*(2), 351-357.

Richardson, E. M., Schüz, N., Sanderson, K., Scott, J. L., & Schüz, B. (2016). Illness Representations, Coping, and Illness Outcomes in People with Cancer: A Systematic Review and Meta-Analysis. *Psycho-Oncology*.

Rimes, K. A., & Chalder, T. (2010). The Beliefs about Emotions Scale: validity, reliability and sensitivity to change. *Journal of Psychosomatic Research, 68*(3), 285-292.

Roberts, S. E., Stern, M., Schreuder, F. M., & Watson, T. (2009). The use of pursed lips breathing in stable chronic obstructive pulmonary disease: a systematic review of the evidence. *Physical Therapy Reviews, 14*(4), 240-246. doi:10.1179/174328809X452908

Roth, A., & Pilling, S. (2007). *The competences required to deliver effective cognitive and behavioural therapy for people with depression and with anxiety disorders*. London Department of Health.

Snoek, F. J., Bremmer, M. A., & Hermanns, N. (2015). Constructs of depression and distress in diabetes: time for an appraisal. *The Lancet Diabetes & Endocrinology, 3*(6), 450-460.

Steptoe, A., & Ayers, S. (2004). Stress, Health and Illness. In S. Sutton, A. Baum, & M. Johnston (Eds.), *The Sage handbook of health psychology* (pp. 169-196). London: Sage.

Tarrier, N., & Johnson, J. (2007). *Case formulation in cognitive behaviour therapy: The treatment of challenging and complex cases*: Routledge.

Wells, A. (1997). *Cognitive therapy of anxiety disorders*. Chichester, West Sussex: John Wiley & Sons Ltd.

World Health Organization. (1996). Diagnostic and management guidelines for mental disorders in primary care. Retrieved from http://apps.who.int/classifications/icd10/browse/2010/en